

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

PMSD/ISB

AUG 22 1988

OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

Memorandum

Subject: 89-TX-20. Section 18 Specific Exemption for the Use  
of Metsulfuron Methyl (Ally, EPA Reg. No. 352-435)  
on Bermudagrass  
No Accession Number / No MRID Number  
DEB #5648

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The Texas Department of Agriculture requests a Section 18 Specific Exemption authorizing the use of metsulfuron methyl (Ally 60DF 60% a.i., EPA Reg. No 352-435) for use on bermudagrass common/coastal meadows to control bahiagrass.

Tolerances have been established for the combined residues of the herbicide, metsulfuron methyl (methyl 2-[[[(4-methoxy-6-methyl-1,3,5 triazin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate) and its metabolite methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl]-4-hydroxy benzoate in/on wheat and barley grain at 0.05 ppm, green forage at 5.0 ppm, hay at 20 ppm, and straw at 0.1 ppm; and for the parent herbicide alone in the meat, fat, and meat by-products of cattle, goats, horses, hogs, and sheep at 0.1 ppm and in milk at 0.05 ppm (see 40 CFR §180.428 (a) and (b)).

The proposed use includes a single ground or aerial application of 0.12 ounces a.i./acre over most of eastern Texas (1,000,000 acres). A minimum of 3 gallons of water of dilution/ acre will be used for applications made by air and 10 gallons of water/acre

for ground applications. Only one application is permitted during the growing season. The PHI was not specified.

The nature of the residue of metsulfuron methyl in plants is adequately understood in plants (see PP#4F3127 and PP#8F3647). The residues of concern are the parent herbicide and its hydroxy metabolite A1.

The nature of the residue in livestock is adequately understood (see PP#4F3127). The residue of concern is the parent herbicide.

Analytical methods available to determine residue data for metsulfuron methyl are published in PAM II. The HPLC-photoconductivity method for small grains, meat, and milk (see PP#4F3127) has been successfully petition method validated. The limit of sensitivity is 0.02 ppm in cereal grains and 0.05 ppm in straw. Recoveries ranged from 66% to 95% (avg. = 82%) for wheat grain for the parent. Wheat samples spiked with the A1 metabolite ranging from 0.02 ppm to 0.16 ppm resulting in recoveries ranging from 60% to 102%. Recoveries in meat and milk ranged from 69% to 118% when spiked at 0.01 ppm to 0.1 ppm.

Residue data reflecting the proposed use of metsulfuron methyl in/on various grasses for forage and hay were submitted with the request. Studies were conducted in 12 states on a wide variety of grass forage including bluegrass, native grasses, various fescues, and coastal and western bermudagrass to determine residues of metsulfuron methyl and its metabolite. The maximum residues found on grass forage at the 1X rate were 7.7 ppm (0 day PHI) of the parent compound and 0.89 ppm (1 day PHI) for the A1 metabolite; 15 ppm (0 day PHI) and 3.2 ppm (3 day PHI) of the A1 metabolite at the 2X rate.

Residues on grass hay (including bermudagrass, bluegrass, and fescue) were determined by studies conducted in 5 states at the 1X and 2X rates. The maximum residues found at the 1X rate were 11.0 ppm (0 day PHI) for the parent compound and 1.2 ppm for the A1 metabolite; 25.0 ppm (0 day PHI) for the parent and 2.3 ppm (3 day PHI) for the A1 metabolite at the 2X rate.

Based on the residue data submitted, we conclude that the combined residues of metsulfuron methyl and its metabolite A1 are not likely to exceed 20 ppm in/on bermudagrass forage and 30 ppm in/on bermudagrass hay as a result of the proposed use.

#### Meat, Milk, Poultry, and Eggs

The maximum dietary intake of metsulfuron methyl by dairy and beef cattle is 27 ppm based on a somewhat unlikely diet composed of 70% grass hay and 30% wheat and barley hay.

Feeding studies have been conducted and reviewed (see PP#4F3127). Four groups of 2 cows each were on diets containing 0, 5, 20, and 100 ppm metsulfuron methyl for four weeks. Half of the cows were sacrificed at the end of treatment while the remaining half were sacrificed a week later (still on the control diet). Residues levels found in the various tissues are summarized below;

<u>Tissue</u>	<u>Feeding Level (ppm)</u>	<u>Avg. Residue (ppm)</u>
liver	0, 5, 20	ND
	100	0.075
fat	0, 5, 20, 100	ND
meat	0, 5, 20	ND
	100	0.020
kidney	5	0.053
	20	0.024 <sup>1</sup>
	100	0.120

ND = not detected

<sup>1</sup> registrant claimed sample contaminated.

Metsulfuron methyl was rapidly excreted in urine and feces of all cows.

Analysis of milk showed that residues of metsulfuron methyl, per se, plateau 2 to 4 days following the start of the 20 ppm and 100 ppm feeding levels. Trace residues (0.01-0.011 ppm) and nondetectable (<0.01 ppm) residues were found in milk collected from cows at the 5 ppm feeding level. Analysis of skim milk and cream from 2 separate milkings indicate no concentration of metsulfuron methyl in either fraction.

Considering the feeding studies and the dietary burden, we conclude that residues of metsulfuron methyl which might occur in milk and the fat, meat, and meat by-products of cattle, goats, horses, hogs, and sheep will be covered by the established tolerances of 0.05 ppm in milk and 0.1 ppm in meat as a result of this specific exemption.

### Conclusions

- (1) The nature of the residue of metsulfuron methyl in plants is adequately understood in plants. The residues of concern are the parent herbicide and its hydroxy metabolite A1.
- (2) The nature of the residue in livestock is adequately understood. The residue of concern is the parent herbicide.

- (3) The combined residues of metsulfuron methyl and its metabolite A1 are not likely to exceed 20 ppm in/on bermudagrass forage and 30 ppm in/on bermudagrass hay as a result of the proposed use.
- (4) Secondary residues of metsulfuron methyl will not exceed currently established tolerances of 0.05 ppm in milk, 0.1 ppm in the meat, fat, and meat by-products of cattle, goats, horses, hogs, and sheep.
- (5) Analytical reference standards are available from the Pesticide and Industrial Chemicals Repository.

#### Recommendations

DEB has no objections to this Section 18 Specific Exemption. An agreement should be made with the FDA regarding the legal status of the treated commodities in commerce.

cc:RF, Circ, Section 18 F, PMSD/ISB, Tomerlin (SACB) JSmith,  
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RDI:ARathman:08/22/89:EZager:08/22/89

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